

CLAIMS

1. A method for screening for compounds secreted by an organism, comprising:

- 5 (a) raising antibodies against secreted products of a donor organism,
- (b) providing a gene library from the donor organism,
- (c) cloning the gene library into a suitable host organism,
- (d) expressing the cloned genes in the host organism, and
- 10 (e) detecting positive clones expressing a cloned gene encoding a secreted compound using the antibodies of (a) to identify such positive clones.

2. The method of claim 1, wherein the secreted compound is
15 selected from the group consisting of enzymes, other proteins and peptides.

3. The method of claim 1 or 2, wherein positive clones are isolated and subjected to at least one additional screening
20 step.

4. The method of any of claims 1-3, wherein positive clones are subjected to at least one additional screening comprising cultivating said positive clones and assaying them in a second
25 immunoassay using the same antibodies as used in the first immunoassay to eliminate possible false positives.

5. The method of any of claims 1-3, wherein the supernatant obtained from cultivating positive clones is used as a starting material for additional screening steps.
- 5 6. The method of any of claims 1-5, wherein the secreted product is an enzyme, and wherein at least one enzyme produced by a positive clone is isolated and tested in a functional assay for desired enzymatic activity.
- 10 7. The method of any of claims 1-6, wherein the donor strain is a microorganism, in particular a bacteria or a fungus.
- 15 8. The method of claims 1-7, further comprising the step of subjecting a secreted compound from a positive clone to an assay in which a desired functionality is tested for to identify clones that produce a compound exhibiting the desired functionality.
- 20 9. The method of claim 8, wherein the desired functionality is selected from wash performance, thermal stability, substrate specificity, catalytic turnover, oxidation stability, sensitivity to inhibitors, pH optimum, detergent stability, stability against microbial inactivation, toxicology, distribution profile in the human or animal body, 25 metabolisation products, side effects, rate of metabolisation or secretion, receptor binding capacity, antimicrobial capacity.

10. The method of claims 1-9, wherein the preparation of a gene library of step (b) is replaced by preparing a gene library from one or more microorganisms different from the donor organism.

5 11. The method of claims 1-9, wherein the preparation of a gene library of step (b) includes a step of mutating a nucleotide sequence of the library.

10 12. A novel compound obtained or obtainable by the method of any of claims 1-11.

13. The compound of claim 12 which is selected from the group consisting of proteins and peptides.

15 14. The compound of claim 13, wherein the protein is an enzyme.

20 15. A method for screening for a nucleotide sequence encoding a compound secreted by an organism comprising steps (a) to (e) of claim 1 and the additional step of subjecting at least one positive clone to nucleotide sequencing to identify at least one nucleotide sequence encoding a secreted compound.

16. A nucleotide sequence obtained or obtainable by the method of claim 15.

25 17. A method for screening microorganisms for strains that secrete a compound comprising step (a) of claim 1 and the additional step of subjecting the microorganism to an

immunoassay using the antibodies from step (a) of claim 1 to identify microorganisms that secrete said compound.

18. The method of claim 17, wherein the screened microorganism
5 is different from the donor organism of claim 1.

19. The method of claim 17, wherein the organism to be screening is present in an environmental sample comprising a mixture of different microorganisms.

20. A microorganism obtained or obtainable by the method of any
of claims 17-19